numerous other benefits, for cases typically referred for Mohs surgery. Moreover, Mohs surgery has been shown to be either cost comparable or slightly more expensive than excision with permanent sections and immediate reconstruction but less costly when frozen sections, delayed reconstruction, or surgical facilities are employed.

CONFLICT OF INTEREST

Dr Fosko discloses that he is a consultant, investigator, and speaker for Genentech. The remaining authors state no conflict of interest.

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Response to Rogers *et al.*

Journal of Investigative Dermatology (2014) **134,** 1135–1136; doi:10.1038/jid.2013.450; published online 21 November 2013

TO THE EDITOR

There is no basis for the assertion by Dr Rogers and his colleagues (2014) that our conclusions were erroneous or affected by the study design. We meticulously studied every patient with basal cell carcinoma or cutaneous squamous cell carcinoma diagnosed over a 2-year period at two busy hospitals at our academic medical center. We had excellent follow-up on virtually all patients, and we analyzed patients at the two hospitals separately before pooling them. We could find no evidence that long-term recurrence was lower after Mohs surgery than after excision, even with multiple analyses that adjusted for differences in patient, tumor, and care characteristics. We conclude that any difference in recurrence rates could be determined only in a randomized controlled trial in which similar patients with similar tumors are randomized to receive one treatment or another.

It is clear that for most nonmelanoma skin cancers, there is insufficient evidence—from our large prospective cohort study and the European randomized controlled trial in facial basal cell carcinomas (Mosterd *et al.*, 2008)—to guide choices between therapies. What this means for our specialty is that we have no data to justify the dramatic increase in Mohs surgery utilization in the USA over the last decades given that Mohs surgery is not the less expensive treatment (Wilson *et al.*, 2012). Because they are costly, randomized controlled trials often are conducted after observational studies demonstrate clinical equipoise in important, targeted situations. This is precisely the situation in which we find ourselves for many nonmelanoma skin cancers. The results of our studies strongly support a focused randomized controlled trial of surgical treatments for nonmelanoma skin cancer, and I urge Dr Rogers and colleagues, as respected Mohs surgeons and leaders, to join me in supporting this next scientific approach to studying the comparative efficacy of these treatments.

In my experience, arguments against such a trial typically fall into three types. First is the conviction that a trial is not indicated and may be unethical because the result would be obvious, since a therapy that eliminates every visible tumor cell and spares normal tissue will of course be curative and therefore superior. Such a belief is wrong in, for example, prostate cancer (Wilt and Ahmed, 2013), and the consistency of our findings and those of the European study for both clinical (Mosterd *et al.*, 2008) and patient-reported (Essers *et al.*, 2006; Chren *et al.*, 2007) outcomes demonstrates that it may be wrong for basal cell carcinoma and cutaneous squamous cell carcinoma. Second is the perspective that since nonmelanoma skin cancer is typically nonfatal, the care of these tumors is too trivial to warrant further study. In fact, of course, these tumors are a burden for the public health; for example, the Global Burden of Disease

Accepted article preview online 12 November 2013; published online 21 November 2013

Study determined that the disability-adjusted life years from nonmelanoma skin cancer are equal to those from melanoma and bladder cancer (Global Burden of Disease Study, 2013). Finally, apparent pragmatists argue that the cost of a definitive randomized controlled trial would be too great. This perspective seems short-sighted for our specialty, as the care of nonmelanoma skin cancer is a key part of our practices (Rogers *et al.*, 2010; Connolly *et al.*, 2012), the cost to Medicare is an important health-care expense (Housman *et al.*, 2003) and the potential misuse of health-care resources is significant enough to engender substantial scrutiny by regulators (Elston, 2013).

We in Dermatology should be at the forefront of calls to the National Institutes of Health and other agencies to address scientifically the gap in evidence to guide care for the most common malignancy. We need a definitive randomized controlled trial to determine the superior surgical treatment for important subgroups of nonmelanoma skin cancers. Only with data can we know that we have ''properly selected skin cancer treatments.''

CONFLICT OF INTEREST

Dr Chren is a consultant for Genentech, Inc.

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Response to Rogers *et al.*

Journal of Investigative Dermatology (2014) **134,** 1136–1137; doi:10.1038/jid.2013.451; published online 21 November 2013

TO THE EDITOR

Rogers *et al.* (2014) appear to have taken umbrage at my commentary (Stern, 2013). For properly selected nonmelanoma skin cancers (NMSCs), Mohs surgery is an excellent and often optimal option. For these tumors, the time, overhead, and intensity required may justify the current reimbursement. However, for many primary NMSCs treated with Mohs surgery, as currently priced and practiced in the United States, Mohs is not a good value proposition for those who pay for medical care and provides little additional benefit to patients (https://www.federalregister.gov/, accessed 23 September 2013 and Wilson *et al.*, 2011). Standard therapies of primary NMSCs outside of the H-zone and scalp, administered by those with procedural training, have slightly higher recurrence rates, are less expensive, take less patient time, and usually give comparable results.

Differences in patient populations are highly unlikely to explain the exceptional variability (>6 and >16 fold among States) in the percent of all NMSCs of the face, neck, scalp, and other sites, respectively, treated with Mohs (Donaldson and Coldiron (2012); Stern (2013)). The proportion of NMSCs treated with Mohs was generally higher in the States with more Mohs surgeons per capita, particularly for tumors not on the head. There must be greater variability among individual dermatologic surgeons in the proportion of NMSCs they treat with Mohs, for which the clinical benefits justify the higher cost. The number of Mohs procedures performed has grown as the number of Mohs Surgeons has increased (Maxwell *et al.*, 2007; Rogers and Coldiron, 2012). Almost certainly, the economics and supply of Mohs surgery rather than medical indications are the strongest drivers of increased utilization. From 1992 to 2002, utilization rates of Mohs for Medicare beneficiaries tripled (Maxwell *et al.*, 2007). Extrapolation from these and 2009 data indicate a rate of two Mohs surgeries per one

Accepted article preview online 24 October 2013; published online 21 November 2013